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## SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

### ACADEMY OF SCIENCES SERVES INDUSTRY

Kiev PRAVDA UKRAINY in Russian 25 Aug 76 p 1

[Editorial: "Academy of Science--To Production"]

[Text] There are 160,000 people, an entire army of scientists, working at institutions of the Ukrainian Academy of Sciences. They are engaged solely in research. Sometimes it is not so easy to see the results of refined and bold experiments.

But, at every step, we also encounter visible and tangible fruit of scientific research: new machinery and technological processes, increasing fertility of the land and victory over diseases and ailments. The results are particularly significant where there is a strong alliance between science and labor, where scientists and industrial personnel strive to make optimum use of innovations to expedite scientific and technological progress.

The 25th CPSU Congress has given scientists an important and responsible task: the contribution of scientists to development of the material and technical base of communism must increase, so that the scientific achievements would be rapidly realized, not only in the form of unique specimens, even if they are the most brilliant, but in the form of many thousands of new types of products.

The scientists of the Ukrainian Academy of Sciences have gained some interesting knowhow with regard to solving this problem.

Knowhow is a true asset, and it does not grow in an empty place, nor is it acquired in a single day. The methods of increasing effectiveness and quality of scientific work tried and tested in the 9th Five-Year Plan, and of accelerating use thereof in practice and upgrading the forms of communication between science and industry are used extensively, and they are being enriched even now.

We have a well-developed experimental production base at our Academy; it cannot only create the modern tools for scientific experimentation, but provide for a highly refined applied research. A qualitatively new form of combining basic research with planning and designing work and industry has emerged. Large scientific complexes have cropped up: institute--designing office--experimental production--experimental plant. Here, in the shortest period of time, the complete cycle is run, from scientific

research to assimilation of the new item in the national economy. The high output of the institutes of electric welding imeni Ye. O. Paton, cybernetics, problems of materials technology, physicotchnology of low temperatures and supersolid materials of the Ukrainian Academy of Sciences has been possible, to a large extent, by the availability of such complexes and concern about creating and strengthening them.

At the 25th CPSU Congress, Comrade L. I. Brezhnev proposed the task of working out and implementing comprehensive programs for development of the national economy. Scientists are to play one of the leading roles in this major direction. It is a good thing that it is inherent in the academy of our republic to make a good choice of research strategy. Manpower and resources are concentrated primarily on the promising directions in which Ukrainian scientists are or can become leaders in the country.

The development and assimilation of scientific and technological innovations are not a simple task. Not infrequently, it requires the efforts of an entire branch of the national economy, if not several branches, and a group of scientific teams, rather than one. The Presidium of the Ukrainian Academy of Sciences [UkAS] made a new step toward augmenting the role of the Academy and continued increase in effectiveness of scientific research and in practical yield thereof. Great benefits are expected from special-purpose comprehensive planning of applied research and work dealing with practical use of its results, which combines the manpower and resources of scientific and industrial teams. In the years of the last Five-Year-Plan, organization of joint work by the Academy and different ministries justified itself, with regard to comprehensive plans for scientific research and assimilation thereof. At the present time, 15 special-purpose comprehensive programs have been approved, and this will permit precise orientation of applied research and work pertaining to practical assimilation of its results in the most promising directions.

Each of these programs is implemented by the joint efforts of many institutes of the Academy, VUZ's, enterprises and ministries. Coordinators have been appointed among institute directors for each problem. Programs are already being implemented with regard to development of new, waste-free technology, with the AvtoZil alliance to increase the productivity of the mine-concentrating process; with the Krivoy Rog Mining and Concentration Combine to develop the ways and means of increasing the productivity and safety of coal mining; with Artemugol' alliance to solve scientific-technological and organizational problems pertaining to upgrading production, and with the L'vov Kineskopom, and many others.

The scientific institutions of the Academy conclude agreements on socialist scientific technological collaboration with enterprises. PRAVDA UKRAINY has already reported on the collaboration between academic, scientific research and VUZ teams of scientists and the Kiev Automatic Lathe Plant imeni Gor'kiy and the Kievpromstroy Combine. This good beginning is being supported.

The local party committees deem it their most important duty to aid in activating creativity of scientific workers and concentrating their efforts on top priority problems of development of science and technology. The Kiev party obkom, together with the scientists, developed an effective system for expediting scientific and technological progress at the enterprises. The L'vov party obkom has involved researchers in development of the scientific bases of control of production quality. Much has been done to intensify scientific work and make fuller use of its results by the Donetsk, Dnepropetrovsk, Khar'kov and Odessa party obkoms. Volunteer [unpaid] scientific technological councils and commissions have been founded in several party raykoms. They help organize competitions among scientific teams, they activate primary party organizations at institutes, and they aid in involving scientists and production workers in taking on joint socialist obligations.

The Central Committee CPSU has approved and supported the measures implemented by the party organization of the republic, the Central Committee of the Communist Party of the Ukraine, with respect to intensifying the role of the UkAS in developing the nationaleconomy, continued increase of effectiveness of scientific research and faster practical use of scientific achievements. The creative initiative of the Presidium of the UkAS, party committees and institute teams has been commended, with reference to strengthening the ties between science and industry.

Our scientists are making an increasingly important contribution to fulfilment of the tasks spelled out by the 25th CPSU Congress. And may this contribution grow with each passing day.

10,657  
CSO: 1870.'



## SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

### INNOVATIONS AT UKRAINE SSR ACADEMY OF SCIENCES CITED

Kiev PRAVDA UKRAINY in Russian 31 Aug 76 p 2

[Article: "A Powerful Accelerator of Progress"]

[Text] The AS UkSSR, successfully developing basic and applied research, has gained positive experience in the introduction of results into practice and has improved the connection of science and production. Vice President of the AS UkSSR, AS UkSSR Academician G. S. Pisarenko described this experience to the editor of PRAVDA UKRAINY.

[Question] Georgiy Stepanovich, please tell us first, about the fame of the AS UkSSR in the Soviet Union and abroad because of its scientific schools.

[Answer] The scientific schools being formed by us in the areas of physics, study of materials, physiology, cybernetics, mechanics and chemistry, are making major contributions to domestic science. They are internationally recognized. Without dwelling on details (which would require too much space) I shall name only the most important and most recent fundamental works of which we are proud. This includes the discovery and study of exciton states in molecular crystals, the study of organic phosphorus compounds and organic sulfur compounds, the development of the ionic theory of bio-electrical potentials and others. They provide the starting point for new, important scientific trends. The development of basic research became one of the fundamental conditions for the creation of new sectors such as, for example, special electrometallurgy and powder metallurgy. Without advancing basic research, it would be impossible to undertake major inter-sectoral scientific and technical tasks. During the 10th Five-Year Plan, our academy will participate in fulfillment of 82 coordination programs of union significance and our institutes are the prototype institutes in four of them.

[Question] The achievements of the Ninth Five-Year Plan, of course, give a sense of satisfaction.

[Answer] Yes, it has worked out well, on the whole. For brevity, I shall present some indicators. More than 2,700 studies were introduced with an

economic effect of nearly 900 million rubles. There have been obtained 5,600 author's certificates and 20 licenses have been granted in industrially developed countries. The level of mechanization of welding operations has reached 56 percent which level is higher than that abroad. This level has been reached, to a large part, because of developments by our scientists.

More than half of the materials and articles manufactured from metal powders are produced according to technologies of the Institute of Problems of the Study of Materials. Consider synthetic diamonds. The USSR now ranks first in the world in their production and use. The Institute of Superhard Materials has contributed greatly to this achievement. Results of works of the academy are being introduced extensively into ferrous metallurgy, into the chemical industry, machine construction, radio electronics and medicine. This is borne out by ideas and by developments.

This promoted innovative methods, means and forms of increase of effectiveness of research. As is well known, considerable attention is given to this in the AS UkSSR.

We have accumulated progressive experience, amassed by institutes of the AS USSR, by Academies of Sciences of Union Republics, by colleges and sectoral scientific research institutes. With consideration for the specialties of individual institutes, it was decided to organize, at them, scientific production bases which would make possible improvement of applied developments to a high degree.

Another landmark in this process is a qualitatively new form of union of basic research and construction and design studies and production. At the site of leading institutes, there arose major scientific and technical complexes: institute, design bureau, experimental production, experimental plant.

Thus there is being perfected, in a short time, an entire cycle from research to assimilation of the innovation into the national economy. Such complexes create a logical chain which shortens the path to practical use of the discovery. They assist in the revelation of a whole series of possibilities for increasing the effectiveness of the work of scientific institutions. However, some economic disconnection of subdivisions of existing complexes, insufficient centralization of administration, "bottlenecks" in the materials and technical provision still impede production of maximal return. Now, the AS UkSSR Presidium has suggested that an improved organizational form of conducting research be set up. There is talk of an academic scientific and technical union.

What would it be like? It may be formed as follows: a single scientific-research, construction and technological and economic-production complex headed by an institute. Here, all stages of the process will be realized: "research-experimental production-introduction" according to a continuous

plan from the rise of the idea to its realization in practice. Inter-sector laboratories, incidentally, were called upon to assist in this. They are created at the site of the academic institute and the sectoral NII [Scientific Research Institute] or enterprises of the interested ministry. The ministry usually finances the laboratory but the academic institutes provide scientific and methodical supervision. There are now 26 such laboratories, established by us jointly with 15 union ministries.

[Question] PRAVDA UKRAINY has already reported that in recent months in the AS UkSSR there arose still another form of effective organization of research and introduction of the results of it into practice. This involves complex scientific and technical programs, undertaken in the interest of unions and major enterprises. Such a good beginning, of course, could not arise out of nothing.

[Answer] Naturally. Modern scientific and technical progress is based upon previously known materials, technology, new equipment and machines, automatic control systems. Most major tasks facing sectors require labor, experience, power of major enterprises and unions and then of all sectors or several sectors. The picture is the same in science. Frequently, the efforts of one institute are insufficient for the solution of complex problems. Cooperation with national-economic complexes is required.

In 1972, a joint decree of the AS UkSSR Presidium and colleagues of the UkSSR Ministry of Ferrous Metallurgy was adopted concerning acceleration of scientific research and the introduction of the developments of the academy into enterprises of the Ministry of Ferrous Metallurgy of the Republic. The results are gratifying. More than 50 scientific research operations were improved and more than 20 very important finished developments. More than 10 new manufactured articles and materials were also introduced.

We are developing experience in the organization of science, accumulated by Academies of Sciences of the Republic. For the 10th Five-Year Plan, 15 new programs with participation of 50 institutes of the academy were formed. We are already working on the realization of them. Take the program for the Moscow Union "AvtoZIL." Its purpose is to create waste-free production in machine construction. Fourteen of our institutes are obligated to fulfill more than 50 major themes.

It is hoped that successful completion of the planned program will permit the distribution of results obtained to other machine construction sectors.

Promising programs of collaboration with the Krivorozhkiy Ore-enrichment Combine and the "Artemugol'" Union, with the L'vov "Kineskop" and with the Black Sea Maritime Steamship Line have been initiated.

The last program, for example, provides, in the course of the 10th Five-Year Plan, greater use of natural resources of the sea and oceans, the

development of methods for preventing water pollution by petroleum and petroleum products, maximal use of the maritime fleet and port installations. These problems will occupy 12 institutions of the academy. More than 12 million rubles are allotted for another joint program with the Kalush production union "Khlorvinil." Scientists and production workers were given the task of producing new forms of production--aerosols, dyes, lubricants, powder fire extinguishing substances, polishing compounds for electronic technology and others.

[Question] Georgiy Stepanovich, how did scientists of the AS take the news concerning the fact that the CPSU Central Committee marked the creative initiative of the AS UkSSR Presidium, of party committees, collectives of institutes in strengthening the connection of science and production and in the amplification of its influence on scientific and technical progress?

[Answer] All scientists of our academy fervently welcomed the high evaluation given by the CPSU Central Committee of the activity of the AS UkSSR and are filled with the desire to do everything in order to extend even further the accumulated experience of the organization of scientific research and the use of the results obtained for the acceleration of scientific and technical progress in our country.

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## SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

### SCIENTIFIC TIES SHOULD BECOME STRONGER!

Yerevan KOMMUNIST in Russian 8 Oct 76 p 4

[Article by V. Krat, director of the Main Astronomical Observatory of the USSR Academy of Sciences, corresponding member of the USSR Academy of Sciences, Leningrad]

[Text] The history of scientific ties between the Pulkovskaya and Byurakanskaya observatories dates back to the early 1930's. At that time, Viktor Ambartsumyan, a young and vigorous graduate student appeared within the walls of Pulkovskaya Observatory, and he was soon to take the position of professor at Leningrad University. During those years, there were quite a few talented young Armenian astronomers training both at Leningrad University and Pulkov Observatory, and later on they wrote a number of glorious pages in the history of the Byurakanskaya Observatory. Suffice it to mention the names of such scientists as L. Mirzoyan, B. Markaryan, G. Tovmasyan and others to realize the high qualifications of specialists at Byurakanskaya Observatory today, and it is one of the remarkable scientific centers of worldwide importance.

The work done at this center deals with some extremely interesting and important problems of our times: evolution of huge cosmic formations, galaxies and stellar groups. And here, on the basis of the ideas of Viktor Amazaspovich Ambartsumyan, who has been deservedly named a star of Soviet science, an integral and orderly program of observations was first organized, and it led to numerous discoveries of considerable interest and importance to problems of stellar astronomy. There was a particularly strong reaction in the scientific world to the ideas of Academician V. A. Ambartsumyan concerning so-called stellar associations and phenomena of bursting and disintegration of huge space structures, and generation of stars. The discovery of quasi-stars (quasars), these truly monstrous formations, confirmed, in many respects, the ideas of V. A. Ambartsumyan and their scientific validity. The astronomers of Pulkov maintain, even now, friendly, business and scientific contact with the Byurakanskaya Observatory.

The astronomers of Leningrad often visit Byurakan and, to this day, participate in training young personnel for Armenia. In this regard, Oleg Aleksandrovich Mel'nikov, corresponding member of the USSR Academy of Sciences,

is making a large contribution. We are confident that our ties of many years' standing will continue to develop in the future as well. On the occasion of completion of installation and start of operation of the third largest telescope in the Soviet Union, at the Byurakan Observatory, the astronomers of Leningrad send their colleagues and friends, the astronomers of Armenia, their wishes for new creative achievements so that Soviet science will flourish.

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## SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

### TASHKENT MEETING OF PHYSICISTS

Tashkent PRAVDA VOSTOKA in Russian 8 Oct 76 p 1

[Text] The All-Union Symposium on Optico-Acoustical Spectroscopy began work in Tashkent on 7 October 1976. This scientific meeting of physicists working on these problems is the first to be conducted on a national scale. Many noted scientists and specialists are participating, including Academicians R. V. Khokhlov and R. Z. Sagdeyev and Corresponding Members of the USSR Academy of Sciences R. I. Soloukhin and P. P. Feofilov. Also participating in the symposium's work is a Swedish guest--Academician, Nobel Prize laureate, and President of the Pugwash Movement X. Alfven.

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## SCIENTISTS AND SCIENTIFIC ORGANIZATIONS

### BRIEFS

ALL-UNION FORUM OF PHYSICISTS--(BELTA)--The participants of the 9th All-Union Conference, which convened in Minsk on 14-18 September, learned about the latest advances in low temperature physics. More than 500 scientists of our country, as well as Bulgaria, Hungary, GDR, Poland, Romania and CSSR discussed the state of affairs in this promising branch of science, and they delineated the most important directions of future research. Yu. V. Sharvin, corresponding member of the USSR Academy of Sciences and chairman of the organization committee of the conference, told this BELTA correspondent: "The papers delivered at this conference are indicative of considerable broadening of topics and objects of investigation at low temperatures. Their geography has also widened; new scientific centers have emerged in our country, in which superconduction and other mechanisms of electric conduction in solids, superfluidity of liquid helium and various properties of substances at close to absolute zero temperatures are investigated. For example, we heard with interest about the research of our Belorussian colleagues who are working successfully in this field." Although the papers and reports were primarily of a theoretical nature, many of them are also of great practical importance. [Text] [Minsk SOVETSKAYA BELORUSSIYA in Russian 19 Sep 76 p 3] 10657

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PUBLICATIONS

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MODELS OF VISUAL PERCEPTION AND ALGORITHMS FOR ANALYSIS OF IMAGES

Moscow MODEL I ZRITEL'NOGO VOSPRIYATIYA I ALGORITMY ANALIZA IZOBRAZHENIY  
in Russian 1974

[Book by N. V. Zavalishin and I. B. Muchnik]

[Excerpts] Title Page:

Title: MODEL I ZRITEL'NOGO VOSPRIYATIYA I ALGORITMY ANALIZA  
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Annotation:

A study is made of the problem of construction of a formal language for description of images in problems of machine processing of visual information. The basic requirement for such a language is that it be similar to the language used by man when dealing with images. A hypothesis is formulated and experimentally developed, according to which the basic elements in the language of description are local geometric peculiarities of images, which are located by means of a special search function fixed in the image. Based on this hypothesis, a number of structural models of human visual perception are constructed, as well as a system of algorithms for automatic formation of the language of description of images. Results of experimental testing of this model and algorithms are presented. The possibilities of applying the algorithms to the construction of man-machine dialog system are studied. 24 Tables; 186 Figures; 260 References.

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CSO: 1870

## PUBLICATIONS

### DESIGN AND TECHNICAL SERVICING OF THE 'ELEKTRONIKA-DD' COMPUTER

Moscow KONSTRUKTSIYA I TEKHNICHESKOYE OBSLUZHIVANIYE MASHINY "ELEKTRONIKA-DD" in Russian 1975

[Book by P. N. Arkhipov]

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Title: KONSTRUKTSIYA I TEKHNICHESKOYE OBSLUZHIVANIYE MASHINY  
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The book being offered contains a description of the operating principles and design of the electronic and functional circuits of the "Elektronika-DD" computer.

The computer may be used to perform automatic addition, subtraction, multiplication and division. The processes of raising to a power and extraction of a square root are performed semiautomatically. Operations may be carried out with both integers and with decimal fractions. If need be, the computer rounds off the product or quotient in accordance with the necessary number of decimal digits after the point.

The operators servicing "Elektronika" computers should bear in mind that the "Elektronika-DD" and "Elektronika-68" computers, which are manufactured by various plants in the country, differ only in their external

appearance and in small changes introduced into the computer design by plant innovators. As regards the operating principles and design of all their electronic and functional circuits, they are identical.

This manual is intended for engineers, technicians, operators and mechanics, engaged in exploitation, technical servicing and maintenance of the Soviet electronic keyboard computers "Elektronika-DD" in computer centers, machine computation stations and offices, in institutions and repair plants. The book may be also useful to students of higher educational institutions and higher technical schools who are studying computing technology.

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## PUBLICATIONS

UDC 669.018.06

### RARE METAL ALLOYS WITH DISTINCTIVE PHYSICOCHEMICAL PROPERTIES

Moscow SPLAVY REDKIKH METALLOV S OSOBYMI FIZIKO-KHIMICHESKIMI SVOYSTVAMI  
in Russian 1975

[Book issued by the Institute of Metallurgy imeni Baykov, Academy of  
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The book deals with current problems in creating alloys of rare metals with special physical properties. It offers vast experimental and theoretical materials on the following aspects of the science: the development and investigation of new refractory alloys, rare-metal magnetic alloys, semiconductor compounds and films; and the utilization of alloys of rare metals in electronics, microelectronics and other areas of modern technology. The prospects of using computers for predicting binary crystalline phases with special physical properties are examined.

The materials in the book were presented at the Second All-Union Conference on Alloys of Rare Metals With Special Physical Properties, held in Moscow at the Institute of Metallurgy imeni Baykov, Academy of Sciences USSR in June 1974.

The book is intended for scientific workers and industrial personnel, including metal researchers and metallurgists, designers, and students at higher educational institutions.

Tables 44, illustrations 168, bibliography of 486 entries.

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## PUBLICATIONS

### METAL PHYSICS

Kiev METALLOFIZIKA in Russian No 60, 1975

[Collection of articles by participants of the All-Union Conference on Electron Spectroscopy and Related Phenomena held in Kiev on 23-24 April 1974]

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The collection contains materials of the All-Union Conference on Electron Spectroscopy and Related Phenomena, held in Kiev on 23-24 April 1974. The articles present theoretical and experimental results on the electron spectroscopy of metals, alloys, and silicate materials, as well as semiconductor compounds and complexes. Designs are discussed for electron spectrometers and methods are presented for obtaining electronic spectra.

The volume is intended for scientific personnel and engineers at scientific research institutions and factory laboratories.

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PUBLICATIONS

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AUTOMATION OF THE PROCESSING, TRANSMISSION AND DISPLAY OF RADAR INFORMATION

Moscow AVTOMATIZATSIYA OBRABOTKI, PEREDACHI I OTOBRAZHENIYA RADIO-  
LOKATIONNOY INFORMATSII in Russian 1975

[Book by V. G. Koryakov, general editor, B. M. Yegorov, B. P. Kredentser,  
A. S. Magdesiyev, A. Ya. Matov, V. A. Petrov, P. A. Savis'ko and V. G.  
Totsenko]

[Excerpts] Title Page:

Title: AVTOMATIZATSIYA OBRABOTKI, PEREDACHI I OTOBRAZHENIYA RADIO-  
LOKATIONNOY INFORMATSII (Automation of the Processing,  
Transmission and Display of Radar Information)

Authors: V. G. Koryakov, general editor, B. M. Yegorov, B. P.  
Kredentser, A. S. Magdesiyev, A. Ya. Matov, V. A. Petrov,  
P. A. Savis'ko and V. G. Totsenko

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Annotation:

The authors give in systematized form familiar as well as original materials of a theoretical and applied nature on the processing, transmission and display of radar information. Along with the operating principles, they give the design of devices for automating these processes. They examine questions of engineering psychology and reliability in developing and exploiting systems for processing radar information.

The book is designed for a broad range of engineers and technicians involved in the development and exploitation of systems of this class.

The book may be useful to specialists in radar technology and students of academic institutions specializing in the field of radar and information processing. Figures 195; tables 37; references 243.

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METHODS OF MODELING CONTROL SYSTEMS WITH THE USE OF ANALOG AND ANALOG-DIGITAL COMPUTERS

Moscow METODY MODELIROVANIYA SISTEM UPRAVLENIYA NA ANALOGOVYKH I ANALOGO-TSIFROVYKH VYCHISLITEL'NYKH MASHINAKH in Russian 1975

[Book by G. M. Petrov, N. B. Lakunin and E. Ye. Bartol'd; part of the Series Osnovy Proyektirovaniya Sistem Upravleniya Letatel'nyimi Apparatami. Spravochnaya Biblioteka Inzhenera-Konstruktora (Fundamentals of Designing Control Systems of Aircraft. Reference Library of Design Engineers), edited by B. A. Ryabov, A. S. Shatalov, V. A. Bodner and Yu. I. Topcheyev]

[Excerpts] Title Page:

Title: METODY MODELIROVANIYA SISTEM UPRAVLENIYA NA ANALOGOVYKH I ANALOGO-TSIFROVYKH VYCHISLITEL'NYKH MASHINAKH (Methods of Modeling Control Systems With the Use of Analog and Analog-Digital Computers)

Authors: G. M. Petrov, N. B. Lakunin and E. Ye. Bartol'd

Publisher: Mashinostroyeniye

Place and year of publication: Moscow, 1975

Signed to Press Date: [Information not available]

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Number of Pages: 255

Annotation:

The book propounds methods of mathematical and semi-natural modeling of control systems of aircraft (AC) with the use of analog computers and analog-digital complexes. Basic principles of the construction of analog computers and their component blocks are examined. General rules of programming problems for solution on analog computers are presented. A great deal of attention is given to the methods of selection and solution of the differential equations which describe AC control under various flight conditions. Examples of the rational working out of patterns with the use of

a minimum number of computing decision elements are given. Patterns of semi-natural and analog-digital modeling are described. Methods of modeling optimization problems and linear programming of AC control systems are examined.

The book is intended for engineers and scientific workers engaged in design and calculation of AC control systems. 18 tables, 102 illustrations, 27 references.

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## PUBLICATIONS

### BASIC UNITS OF ELECTRONIC COMPUTERS AND COMPUTER SYSTEMS

Moscow OSNOVNYYE USTROYSTVA ELEKTRONNYKH VYCHISLITEL'NYKH MASHIN I  
VYCHISLITEL'NYKH SISTEM in Russian 1975

[Book by I. A. Komandrovskaya, L. D. Rostkovskaya, V. N. Ryazankin and  
N. G. Chernyak]

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Title: OSNOVNYYE USTROYSTVA ELEKTRONNYKH VYCHISLITEL'NYKH MASHIN I  
VYCHISLITEL'NYKH SISTEM (Basic Units of Electronic Com-  
puters and Computer Systems)  
Authors: I. A. Komandrovskaya, L. D. Rostovskaya, V. N. Ryazankin  
and N. G. Chernyak  
Publisher: "Statistika"  
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Number of Pages: 208

#### Annotation:

The "Basic Units of Electronic Computers and Computer Systems" is a text-  
book approved by the USSR Ministry of Higher and Secondary Specialized  
Education for students of higher educational institutions majoring in the  
specialty of "Organization of Mechanized Processing of Economic Informa-  
tion."

The textbook explains principles of the structure and operation of the  
basic units of electronic computers and computing systems. The main  
attention is given to the characteristics of standard components, and the  
structure of both processors and peripheral equipment of electronic com-  
puters and computing systems. The principles of the structure of the  
Unified System of Electronic Computers are examined along with the struc-  
ture of individual components of the complex.

The textbook may also be used by specialists working in the field of application of electronic computers and computing systems, in automated control systems, and in the computer centers.

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## PUBLICATIONS

### COMPUTERS AND PROGRAMMING

Moscow VYCHISLITEL'NYYE MASHINY I PROGRAMMIROVANIYE in Russian 2d Edition,  
Revised and Supplemented 1975

[Book by S. A. Budekina, Yu. V. Kudryavtsev and I. B. Milan]

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Title: VYCHISLITEL'NYYE MASHINY I PROGRAMMIROVANIYE (Computers and  
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Number of Pages: 304

#### Brief Description:

The second edition of the book is written in accordance with the new program for the "computers and programming" course and is intended for students in the economics departments of agricultural VUZ's, both day and evening. It can also be used by accounting workers in agricultural enterprises, computer centers and machine-accounting stations. The book discusses the principles of the construction and operating capabilities of the latest electromechanical and electronic computers, the principles of programming, and approaches and methods of working with computers. It is illustrated with numerous photographs.



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## PUBLICATIONS

### ACCOUNTING AND BUSINESS MACHINERY IN AUTOMATED MANAGEMENT SYSTEMS

Moscow ORGTEKHNIKA V ASU in Russian 1975

[Booklet by Anatoliy Valentinovich Prokov'yev]

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#### Abstract:

Accounting and business machinery, or orgtekhnik [literally, organizational equipment or technology], can be defined as the hardware used in the preparation of documents and drawings; in duplication, processing, storage, and retrieval of information carriers; in recording, transmission, and display of data, etc. It is part of the hardware resources of automated control systems.

This booklet, which is intended for a wide range of engineering and technical workers, is devoted to the problems of the combined use of orgtekhnik and computer technology in industrial management. It deals with the application of orgtekhnik to automated management systems in enterprises and sectors of industry and to automated scientific-technical information systems.

The following rule may be used to distinguish between orgtekhnik and computer technology: if a device is connected electrically to a computer, as

is, for example, the Konsul-254 typewriter, which serves as an input-output unit for the Nairi-3 computer, then it is considered a component part of the computer complex; if, on the other hand, an individual typewriter of the same kind is used in a plant administration office, then it is part of orgtekhnika. An automatic drafting machine operating under the control of inflexible programs written on attached information carriers, or even a drafting automaton that has its own specialized electronic calculator, falls under the category of orgtekhnika. However, an automatic drafting machine that is permanently connected to a general-purpose computer for which it serves as an output device, is viewed as part of the computer complex.

The assignment of a piece of equipment to the category of orgtekhnika rather than computer technology also depends on its portability and the possibility of using it at a work space. Hence, the term "office equipment" is often used abroad to designate orgtekhnika. In this sense, all keyboard calculator-computers would be classified as orgtekhnika.

The terms "office" or "intra-departmental" could also be applied to the communications channels used with orgtekhnika, which differ from ordinary ones in their limited long-distance capability. Thus, telegraph devices used for communication between the subdivisions of a single large enterprise are defined as orgtekhnika resources, whereas those used for direct communication between the enterprise and a ministry are classified as normal means of communication.

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## PUBLICATIONS

### REPORT GENERATOR SYSTEM FOR THE MINSK-32 ELECTRONIC COMPUTER

Moscow SISTEMA GENERATORA OTCHETOV DLYA EVM "MINSK-32" in Russian 1975

[Book by V. I. Prokhorov, V. M. Savinkov (general editor), P. I. Teplitskiy and V. L. Khatsernov]

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Number of Pages: 246

#### Annotation:

The present book contains a detailed description of a problem-oriented RPG [Report Program Generator] system for the computer Minsk-32. The book was compiled as a practical manual aimed at mastering the RPG-32 system and at its concrete utilization.

The character of the presentation of the material of the book is intended for specialists familiar with the essence of electronic data processing and with the programming system for the Minsk-32 electronic computer.

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## PUBLICATIONS

### EFFECTIVENESS OF METHODS OF ORGANIZING THE COMPUTING PROCESS IN AUTOMATED CONTROL SYSTEMS

Moscow EFTEKTIVNOST' METODOV ORGANIZATSII VYCHISLITEL'NOGO PROTSESSA V ASU in Russian 1975

[Book by V. V. Lipayev and S. F. Yashkov]

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Number of Pages: 255

#### Annotation:

The problems concerning effective utilization of the computing resources of digital control computers operating in a real-time scale are considered. Basic characteristics of the various methods of organizing the computing process are presented. The effectiveness of complex and advanced methods of organizing the computing process is compared with the simplest methods, taking into account the outlays of the computing resources of control digital computers needed to implement them. Recommendations are given for the application of various methods and disciplines of organizing the computing process, as well as principles for evaluating their effectiveness.

The book is intended for specialists elaborating mathematical software for ASU's, as well as for teachers and senior-course students at higher educational institutions of the appropriate specialties.



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## PUBLICATIONS

### INFORMATION NETWORKS WITH ELECTRONIC COMPUTERS

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#### Annotation:

In this brochure the authors tell about information networks with electronic computers that make it possible to collect, transmit, and process information by remote control. They discuss the functions of the networks, the types of services they provide, and special features of the information processes. They present basic data on network structures, satellite communications, and data transmission, as well as the economic characteristics and prospects for the development and use of networks in ASU's [automatic control systems] and ASU's for sectors of industry.

This brochure is aimed at readers who are interested in contemporary achievements in radio electronics, cybernetics, and communications and their application.

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